



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION IX**

**75 Hawthorne Street  
San Francisco, CA 94105-3901**

SFUND RECORDS CTR  
0055-00027

SFUND RECORDS CTR  
SDMS # 46026

**SEP 11 1998**

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

Stephen Fleming, Director  
Health, Safety and Environment  
AlliedSignal, Inc.  
111 South 34th Street  
Phoenix, Arizona 85072

Re: Order 98-15 pursuant to Section 106 of CERCLA, 42 USC §9606  
for Remedial Action at the Motorola 52nd Street Superfund Site

Dear Mr. Fleming:

The United States Environmental Protection Agency ("EPA") hereby issues the enclosed Unilateral Administrative Order 98-15 pursuant to Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 USC §9606, to implement the interim remedy at the Motorola 52nd Street Site. The Order requirements include construction, start-up, and one year of operation and maintenance of a groundwater extraction and treatment system for Operable Unit Two ("OU2"). This Order does not address long-term operation and maintenance ("O&M").

The enclosed Order is not effective until December 1, 1998. This delayed effective date provides the potentially responsible parties (PRPs) at this Site an opportunity to reach agreement on the required remedial activities for OU2 and to enter into a Consent Decree with the Arizona Department of Environmental Quality ("ADEQ"). EPA, in its discretion, may add additional PRPs and/or include long-term O&M to this Order prior to the effective date. As an alternative, EPA may elect to address long-term O&M in a subsequent Order.

If you have any technical questions regarding this Order, please contact Nadia Hollan at (415) 744-2363. For any legal questions, please contact Allyn Stern at (415) 744-1372.

Sincerely,

A handwritten signature in black ink that reads "Keith Takata" followed by a horizontal line.

Keith Takata, Director  
Superfund Division

Enclosure

cc: Glen Hallman, Esq.  
David Campbell, Esq.  
Sharen Meade, Esq.  
Nadia Hollan  
Jean Calhoun  
Maria Fant  
Linda Pollock

UNILATERAL ADMINISTRATIVE ORDER  
FOR REMEDIAL ACTION  
MOTOROLA 52ND STREET SUPERFUND SITE

## TABLE OF CONTENTS

I. INTRODUCTION AND JURISDICTION	1
II. FINDINGS OF FACT	2
III. CONCLUSIONS OF LAW AND DETERMINATIONS	6
IV. NOTICE TO THE STATE	8
V. ORDER	8
VI. DEFINITIONS	8
VII. NOTICE OF INTENT TO COMPLY	11
VIII. PARTIES BOUND	12
IX. WORK TO BE PERFORMED	13
A. <u>Remedial Action</u>	14
X. FAILURE TO ATTAIN PERFORMANCE STANDARDS	17
XI. EPA PERIODIC REVIEW	18
XII. ADDITIONAL RESPONSE ACTIONS	18
XIII. ENDANGERMENT AND EMERGENCY RESPONSE	19
XIV. EPA REVIEW OF SUBMISSIONS	20
XV. PROGRESS REPORTS	20
XVI. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS	21
XVII. COMPLIANCE WITH APPLICABLE LAWS	22
XVIII. REMEDIAL PROJECT MANAGER	23
XIX. ACCESS TO SITE NOT OWNED BY RESPONDENT	24
XX. SITE ACCESS AND DATA/DOCUMENT AVAILABILITY	26
XXI. RECORD PRESERVATION	27
XXII. DELAY IN PERFORMANCE	28
XXIII. ASSURANCE OF ABILITY TO COMPLETE WORK	29

XXIV. REIMBURSEMENT OF RESPONSE COSTS	30
XXV. UNITED STATES NOT LIABLE	31
XXVI. ENFORCEMENT AND RESERVATIONS	31
XXVII. ADMINISTRATIVE RECORD	33
XXVIII. EFFECTIVE DATE AND COMPUTATION OF TIME	33
XXIX. OPPORTUNITY TO CONFER	33

IN THE MATTER OF:

Motorola 52nd Street Superfund Site  
Operable Unit 2

AlliedSignal, Inc.,  
Respondent.

Proceeding Under Section 106(a) of the  
Comprehensive Environmental Response,  
Compensation, and Liability Act of 1980,  
as amended (42 U.S.C. § 9606(a))

U.S. EPA  
Docket No.98-15

## I. INTRODUCTION AND JURISDICTION

1. This Order directs Respondent to implement an interim remedial action for the remedy described in the Record of Decision for the Motorola 52nd Street Superfund site, Operable Unit Two dated July 21, 1994. This Order is issued to Respondent by the United States Environmental Protection Agency ("EPA") under the authority vested in the President of the United States by section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580 (52 Fed. Reg. 2926, January 29, 1987), delegated to EPA Regional Administrators on September 13, 1987 by EPA Delegation No. 14-14-B, and further delegated to EPA Region 9 Superfund Division Director on September 29, 1997 by EPA Delegation No. 14-14-B.

## II. FINDINGS OF FACT

2. The Motorola 52nd Street Superfund Site in Phoenix, Arizona includes the Motorola Semiconductor Products Sector Plant, located at 5005 East McDowell Road, and all areas where hazardous substances, pollutants or contaminants therefrom have come to be located or areas that are contributing to the contamination, including the AlliedSignal Aerospace Company, located at 111 South 34th Street. Releases of hazardous substances from the AlliedSignal facility have contributed to the ground water contamination at Operable Unit Two. The response activities are conducted in three study areas. EPA and ADEQ have addressed the contamination at this Site with interim remedies consisting of two operable units to date. Contamination not addressed by the two operable units continues to be investigated by EPA and ADEQ.

3. Respondent is currently the owner and operator of the AlliedSignal Aerospace Company facility. AlliedSignal has been the owner and operator of the facility since 1952, when AlliedSignal occupied a portion of the current property by lease with the City of Phoenix. Since that time, AlliedSignal has either acquired or leased additional property to comprise the current boundaries of the facility.

4. The AlliedSignal facility has been used for manufacturing, repair, overhaul, testing, and storage of various aviation-related products. Solvents, including TCE and TCA, were used to clean parts. TCE was also used as a refrigerant.

5. On September 30, 1988, EPA signed the Record of Decision (ROD) for the Motorola 52nd Street Site Operable Unit One remedial action. This ROD served as EPA concurrence with the remedial action approved by the ADEQ.

6. On October 4, 1989, (54 Fed. Reg. 41,000), pursuant to section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Motorola 52nd Street Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B.

7. Pursuant to CERCLA Section 104(d)(1), 42 U.S.C. § 9604(d)(1), EPA has designated the Arizona Department of Environmental Quality (ADEQ) as the lead agency with authority to plan and implement response actions under the National Contingency Plan (NCP), 40 C.F.R. Part 300, at the Site.

8. In 1989, Motorola, Inc., a Potentially Responsible Party (PRP) and the State of Arizona entered into a Consent Order requiring Motorola to design and implement a ground water treatment system at the Site for the purpose of containing the migration of solvents in soils and ground water from the plant to an area east of the old Crosscut canal at 46th street. This remedy, identified as the Operable Unit One Remedy, has been in operation since May 1992.

9. From about February 1992 to about October 1993, Motorola, Inc., in conjunction with ADEQ and EPA, undertook a Remedial Investigation and Feasibility Study ("RI/FS") for Operable Unit Two, pursuant to CERCLA and the NCP.

10. Pursuant to section 117 of CERCLA, 42 U.S.C. § 9617, ADEQ published notice of the completion of the Operable Unit Two FS and of the proposed plan for interim remedial action on January 5, 1994, and provided opportunity for public comment on the proposed interim remedial action.

11. The decision by EPA on the interim remedial action to be implemented at the Motorola 52nd Street Site Operable Unit Two is embodied in a final Record of Decision ("ROD"), executed by ADEQ on



July 1, 1994 and by EPA on July 21, 1994. The interim remedial action selected by this ROD requires the extraction, treatment, and re-injection of ground water in the vicinity of Interstate 10 and Van Buren Street. The ROD is attached to this Order as Attachment A and is incorporated by reference. The ROD is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

12. The interim remedial action described in the ROD address the principal threat and primary risk at Operable Unit Two by establishing a capture zone across the entire width and depth of the contaminant plume and to reduce concentrations of contaminated groundwater.

13. On April 9, 1997, Motorola, the City of Phoenix and the State of Arizona entered into a Consent Decree (OU 2 RD Consent Decree) requiring, in part, that Motorola develop final plans and specifications for a ground water extraction, containment and treatment system for Operable Unit Two. The Decree also provides that Motorola will reimburse the State of Arizona for its past response costs incurred at the Site and for its future response costs in overseeing the design work for Operable Unit Two. Pursuant to the OU 2 RD Consent Decree, the City of Phoenix contributed a cash payment toward the Remedial Design. EPA and ADEQ expect that Motorola will complete 90% of the design for Operable Unit Two by September 8, 1998.

14. This Order addresses the Remedial Action for Operable Unit Two.

15. The soil and ground water at Operable Unit Two are contaminated with volatile organic compounds (VOCs) including, trichloroethylene (TCE) and its degradation by-product 1,2-

dichloroethylene (1,2-DCE), tetrachloroethylene(PCE), and 1,1,1-trichloroethane (1,1,1-TCA) and its degradation by-products, 1,1-dichloroethylene (1,1-DCE) and 1,1-dichloroethane (1,1-DCA). The soil and ground water are also contaminated with vinyl chloride, which is a degradation by-product of both 1,1,1,-TCA and TCE.

16. A Preliminary Assessment (PA) was completed in June 1983 and a Preliminary Re-Assessment (PRA), was completed on September 1, 1993. The PRA identified potential source areas at the AlliedSignal facility, including a solvent storage area, the low altitude cooling chamber, and fifteen satellite drum accumulation areas.

17. Sample results from ground water monitoring wells located on and around the AlliedSignal facility show VOC contamination, with levels of 1,1,1-TCA up to 40,000 ug/l, 1,1-DCE up to 5,000 ug/l, 1,2-DCE up to 700 ug/l, TCE up to 500 ug/l, and vinyl chloride up to 1500 ug/l, all significantly in excess of drinking water standards.

18. August 1997 Soil gas sampling in the solvent storage area shows levels of 1,1,1-TCA up to 1390 ug/l in the deep samples and up to 790 ug/l in the shallow samples. TCE was detected up to 84 ug/L in the deep samples and up to 390 ug/l at the shallow sampling depth. Both TCE and TCA were detected at every depth measured in the soil samples. 1,1-DCA, and 1,1-DCE were also detected in elevated levels in both shallow and deep soils.

19. On August 2, 1984, AlliedSignal reported a spill of TCE from a valve on the low altitude cooling chamber. In response to this spill, some soil was excavated and the remaining soil was cleaned to a maximum of 35 ppb of TCE.

20. The facility also contained fifteen satellite accumulation areas that were used as temporary collection sites for 55-gallon drums of solvent. Each area has a storm drain for drainage of chemicals. According to the PRA, the drum areas were not well maintained and the concrete was visibly stained in the drum areas. In addition, the PRA states that the storm drains appeared full of leaked solvents from tanks containing solvents, including TCA.

21. Ground water contaminated with TCE and 1,2,-DCE flows from the Motorola facility in a west-southwest direction and directly underneath and down gradient from the AlliedSignal facility. Ground water monitoring wells at and down gradient from the AlliedSignal facility also show elevated levels of TCE, 1,2,-DCE, 1,1,1-TCA, 1,1-DCE, and vinyl chloride contamination.

22. The Site contains a mixture of commercial, industrial and residential properties. The AlliedSignal facility is located immediately north of the Phoenix Sky Harbor Airport and one mile from the Salt River. The wells located on the Site are currently used for commercial, industrial, and agricultural purposes, but could potentially be used as a source of drinking water.

23. The Baseline Risk Assessment for this Site demonstrates that the potential risk from exposure to contaminated ground water is greater than the  $1 \times 10^{-4}$  (one in 10,000), the upper limit of the generally acceptable risk range specified in the National Contingency Plan.

### III. CONCLUSIONS OF LAW AND DETERMINATIONS

24. The Motorola 52nd Street Site and the AlliedSignal Aerospace Company are each a "facility" as defined in section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

25. Respondent is a "person" as defined in section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

26. Respondent is a "liable party" as defined in section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is subject to this Order under section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

27. The substances listed in paragraph 15 are found at the Site, including Operable Unit Two, and are "hazardous substances" as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

28. These hazardous substances have been and are being released from Respondent's facility into the soil and ground water of Operable Unit Two of the Site.

29. The past and present disposal and migration of hazardous substances from the Site, including Operable Unit Two, are a "release" as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

30. The release or threat of release of one or more hazardous substances from Operable Unit Two, including Respondent's facility may present an imminent and substantial endangerment to the public health or welfare or the environment.

31. The contamination and endangerment at Operable Unit Two and this Site constitute an indivisible injury. The actions required by this Order are necessary to protect the public health, welfare, and the environment.

#### IV. NOTICE TO THE STATE

32. EPA notified the State of Arizona, Department of Environmental Quality, of the issuance of this Order by sending a copy of this Order to ADEQ by US mail.

#### V. ORDER

33. Based on the foregoing, Respondent is hereby ordered to comply with the following provisions, including but not limited to all attachments to this Order, all documents incorporated by reference into this Order, and all schedules and deadlines in this Order, attached to this Order, or incorporated by reference into this Order:

#### VI. DEFINITIONS

34. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in the statute or its implementing regulations. Whenever terms listed below are used in this Order or in the documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:

a. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

b. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the end of the next working day.

c. "EPA" shall mean the United States Environmental Protection Agency.

d. "ADEQ" shall mean the Arizona Department of Environmental Quality.

e. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

f. "Operation and Maintenance" or "O&M" shall mean all activities required under the Operation and Maintenance Plan developed by Respondent pursuant to this Order and the Statement of Work, and approved by EPA.

g. "Operable Unit One" or "OU 1" shall mean the area addressed by the Remedial Investigation Report for OU 1, dated June 1987.

h. "Operable Unit Two" or "OU 2" shall mean the area described more fully in the OU 2 Record of Decision for the Site dated July 21, 1994, in the attached Statement of Work, and any additional areas requiring response action pursuant to this Order.

i. "Paragraph" shall mean a portion of this Order identified by an Arabic numeral.

j. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations, identified in the Record of

Decision and Statement of Work, that the Remedial Action and Work required by this Order must attain and maintain.

k. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Site, Operable Unit Two , signed on July 21, 1994 by the Regional Administrator, EPA Region IX, and by ADEQ on July 1, 1994, and all attachments, amendments, or explanation of significant differences ("ESD") thereto.

l. "Remedial Action" or "RA" shall mean those activities, including one year of Operation and Maintenance, to be undertaken by Respondent to implement the final plans and specifications submitted to EPA pursuant to the Remedial Design Work Plan approved by ADEQ and EPA, the attached Statement of Work, and any additional activities required under Sections X, XI, XII, XIII, and XIV of this Order.

m. "Remedial Design" or "RD" shall mean the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

n. "Response Costs" shall mean all costs, including direct costs, indirect costs, and accrued interest incurred by the United States to perform or support response actions at the Site. Response costs include but are not limited to the costs of overseeing the Work, such as the costs of reviewing or developing plans, reports and other items pursuant to this Order and costs associated with verifying the Work.

o. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Action and one year of Operation and Maintenance at Operable Unit Two, as set forth in Attachment B to this Order. The Statement of Work and all

attachments, thereto are incorporated into this Order and are an enforceable part of this Order.

p. "Section" shall mean a portion of this Order identified by a roman numeral and includes one or more paragraphs.

q. "Site" shall mean the Motorola 52nd Street Superfund site, in Phoenix, Arizona, as described on the National Priorities List, and including any areas where hazardous substances, pollutants or contaminants therefrom have come to be located or areas that are contributing to the contamination, including the AlliedSignal facility.

r. "State" shall mean the State of Arizona.

s. "United States" shall mean the United States of America.

t. "Work" shall mean all activities Respondent is required to perform under this Order to implement the ROD for Operable Unit Two, including Remedial Action, and any activities required to be undertaken pursuant to Sections VII through XXIV, and XXVII of this Order.

#### VII. NOTICE OF INTENT TO COMPLY

35. Respondent shall provide, not later than five (5) days after the effective date of this Order, written notice to EPA's Remedial Project Manager (RPM) stating whether it will comply with the terms of this Order. If Respondent does not unequivocally commit to perform the RA as provided by this Order, it shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondent's written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondent under



sections 106(b) and 107(c)(3) of CERCLA. The absence of a response by EPA to the notice required by this paragraph shall not be deemed to be acceptance of Respondent's assertions.

#### VIII. PARTIES BOUND

36. This Order shall apply to and be binding upon the Respondent, its directors, officers, employees, agents, successors, and assigns. No change in the ownership, corporate status, or other control of the Respondent shall alter any of the Respondent's responsibilities under this Order.

37. Respondent shall provide a copy of this Order to any prospective owners or successors before a controlling interest in Respondent's assets, property rights, or stock are transferred to the prospective owner or successor. Respondent shall provide a copy of this Order to each contractor, sub-contractor, laboratory, or consultant retained to perform any Work under this Order, within five days after the effective date of this Order or on the date such services are retained, whichever date occurs later. Respondent shall also provide a copy of this Order to each person representing any Respondent with respect to Operable Unit Two or the Work and shall condition all contracts and subcontracts entered into hereunder upon performance of the Work in conformity with the terms of this Order. With regard to the activities undertaken pursuant to this Order, each contractor and subcontractor shall be deemed to be related by contract to the Respondent within the meaning of section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Order and for ensuring that its contractors, subcontractors and agents comply with this Order, and perform any Work in accordance with this Order.

#### IX. WORK TO BE PERFORMED

38. Respondent shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Respondent shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to Operable Unit Two.

39. All aspects of the Work to be performed by Respondent pursuant to this Order shall be under the direction and supervision of a qualified Supervising Contractor the selection of which shall be subject to approval by EPA. Within thirty (30) days after the effective date of this Order, Respondent shall notify EPA in writing of the name and qualifications of the Supervising Contractor, including primary support entities and staff, proposed to be used in carrying out Work under this Order. If at any time Respondent proposes to use a different Supervising Contractor, Respondent shall notify EPA and shall obtain approval from EPA before the new Supervising Contractor performs any Work under this Order.

40. EPA will review Respondent's selection of a Supervising Contractor according to the terms of this paragraph and the SOW. If EPA disapproves of the selection of the Supervising Contractor, Respondent shall submit to EPA within 15 days after receipt of EPA's disapproval of the Supervising Contractor previously selected, a list of Supervising Contractors, including primary support entities and staff, that would be acceptable to Respondent. EPA will thereafter provide written notice to Respondent of the names of the Supervising Contractors that are acceptable to EPA. Respondent may then select any approved Supervising Contractor from that list and shall notify EPA of the name of the Supervising

Contractor selected within 30 days of EPA's designation of approved Supervising Contractors.

B. Remedial Action

41. In accordance with the schedule set forth in the SOW, Respondent shall submit a Remedial Action Work Plan (RA Work Plan) to EPA for review and approval. The RA Work Plan shall be developed in accordance with the ROD, and the attached Statement of Work, and shall be consistent with the Final Remedial Design as approved by EPA. The RA Work Plan shall include the elements as identified in the SOW and shall be completed in accordance with the schedule identified as Attachment 1 to the SOW. Respondent shall also submit to EPA for review, in accordance with the SOW and Attachment 1 to the SOW at least the following: (1) Site Management Plan; (2) Health and Safety Plan; (3) Sampling and Analysis Plan; (4) Quality Assurance Project Plan; (5) Field Sampling Plan; (6) Data Management Plan; (7) Pollution Control & Mitigation Plan; (8) Waste Management Plan; (9) Construction Quality Assurance Plan; (10) Operation & Maintenance Manual; (11) Start-up Monitoring Plan; and (12) Contingency Plan. The Health and Safety Plan for field activities shall conform to applicable Occupational Safety and Health Administration and EPA requirements, including but not limited to the regulations at 54 Fed. Reg. 9294.

42. Upon approval by EPA, the Final RA Work Plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order.

43. Upon approval of the RA Work Plan by EPA, Respondent shall implement the RA Work Plan according to the schedules in the RA Work Plan. Unless otherwise directed by EPA, Respondent shall not commence remedial action at the Site prior to approval of the RA Work Plan.

44. If Respondent seeks to retain a construction contractor to assist in the performance of the Remedial Action, then Respondent shall submit a copy of the contractor solicitation documents to EPA not later than five (5) days after publishing the solicitation documents.

45. Prior to submission of the Final RA Work Plan, Respondent shall notify EPA in writing of the name, title, and qualifications of any construction contractor proposed to be used in carrying out work under this Order. If at any time Respondent proposes to change the construction contractor, Respondent shall notify EPA before the new construction contractor performs any work under this Order.

46. The Work performed by Respondent pursuant to this Order shall, at a minimum, achieve the Performance Standards specified in the Record of Decision and the Statement of Work.

47. Notwithstanding any action by EPA, Respondent remains fully responsible for achievement of the Performance Standards in the Record of Decision and Statement of Work. Nothing in this Order, or in EPA's approval of the Statement of Work, or in the Remedial Design or Remedial Action Work Plans, or approval of any other submission, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the Remedial Action will achieve the Performance Standards set forth in the ROD and in the Statement of Work. Respondent's compliance with such approved documents does not foreclose EPA from seeking additional work to achieve the applicable performance standards.

48. Respondent shall, prior to any off-site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the appropriate state

environmental official in the receiving state and to EPA's RPM of such shipment of hazardous substances. However, the notification of shipments shall not apply to any off-Site shipments when the total volume of all shipments from the Site to the State will not exceed ten (10) cubic yards.

a. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for Remedial Action construction. Respondent shall provide all relevant information, including information under the categories noted in paragraph .a above, on the off-Site shipments as soon as practicable after the award of the contract and before the hazardous substances are actually shipped.

49. In accordance with Section 7.1 of the SOW, within fifteen (15) days after completion of construction and operational testing of the treatment system, Respondent shall so notify EPA and shall schedule and conduct a pre-certification inspection to be attended by Respondent and EPA. The pre-certification inspection shall be followed by a written report submitted within thirty (30) days of the inspection by a registered professional engineer and Respondent's Project Coordinator certifying that the construction

and operational testing of the treatment system has been completed in full satisfaction of the requirements of this Order. If, after completion of the pre-certification inspection, receipt and review of the written report, and after Respondent has completed the Remedial Action, as required by Sections 7.0 through 9.0 of the SOW, EPA determines that the Remedial Action, or any portion thereof has not been completed in accordance with this Order, EPA shall notify Respondent in writing of the activities that must be undertaken and shall set forth in the notice a schedule for performance of such activities. Respondent shall perform all activities described in the notice in accordance with the specifications and schedules established therein. If EPA concludes, following the initial or any subsequent certification of completion by Respondent that the Remedial Action has been fully performed in accordance with this Order, EPA may notify Respondent that the Remedial Action has been fully performed. EPA's notification shall be based on present knowledge and Respondent's certification to EPA, and shall not limit EPA's right to perform periodic reviews pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any action that in the judgment of EPA is appropriate at the Site, in accordance with 42 U.S.C. §§ 9604, 9606, or 9607.

#### X. FAILURE TO ATTAIN PERFORMANCE STANDARDS

50. In the event that EPA determines that additional response activities are necessary to meet applicable Performance Standards, EPA may notify Respondent that additional response actions are necessary.

51. Unless otherwise stated by EPA, within thirty (30) days of receipt of notice from EPA that additional response activities are necessary to meet any applicable Performance Standards, Respondent shall submit for approval by EPA a work plan for the additional

response activities. The plan shall conform to the applicable requirements of sections IX, XVI, and XVII of this Order. Upon EPA's approval of the plan pursuant to Section XIV, Respondent shall implement the plan for additional response activities in accordance with the provisions and schedule contained therein.

#### XI. EPA PERIODIC REVIEW

52. Under section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may review the Site to assure that the Work performed pursuant to this Order adequately protects human health and the environment. As a result of any review performed under this paragraph, Respondent may be required to perform additional Work or to modify Work previously performed.

#### XII. ADDITIONAL RESPONSE ACTIONS

53. EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response activities may be necessary to protect human health and the environment. If EPA determines that additional response activities are necessary, EPA may require Respondent to submit a work plan for additional response activities. EPA may also require Respondent to modify any plan, design, or other deliverable required by this Order, including any approved modifications.

54. Not later than thirty (30) days after receiving EPA's notice that additional response activities are required pursuant to this Section, Respondent shall submit a work plan for the response activities to EPA for review and approval. Upon approval by EPA, the work plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon approval of the work plan by EPA, Respondent shall implement the work plan according to the standards, specifications, and schedule in the approved work plan. Respondent shall notify EPA of their

intent to perform such additional response activities within seven (7) days after receipt of EPA's request for additional response activities.

#### XIII. ENDANGERMENT AND EMERGENCY RESPONSE

55. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA's Remedial Project Manager (RPM) or, if the RPM is unavailable, EPA's Alternate RPM. If neither of these persons is available Respondent shall notify the EPA Emergency Response Unit, Region IX. Respondent shall take such action in consultation with EPA's RPM and in accordance with all applicable provisions of this Order, including but not limited to the Health and Safety Plan and the Contingency Plan. In the event that Respondent fails to take appropriate response action as required by this Section, and EPA takes that action instead, Respondent shall reimburse EPA for all costs of the response action not inconsistent with the NCP. Respondent shall pay the response costs in the manner described in Section XXIV of this Order, within thirty (30) days of Respondent's receipt of demand for payment and a cost summary report of the costs incurred.

56. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.



#### XIV. EPA REVIEW OF SUBMISSIONS

57. Any deliverable, plan, report or other item that is required to be submitted for review and approval pursuant to this Order shall be reviewed by EPA and ADEQ. After such review, EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct Respondent to re-submit the document after incorporating EPA's or ADEQ's comments; or (d) disapprove the submission and assume responsibility for performing all or any part of the response action. As used in this Order, the terms "approval by EPA," "EPA approval," or a similar term means the action described in paragraphs (a) or (b) of this paragraph.

58. In the event of approval or approval with modifications by EPA, Respondent shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA.

59. Upon receipt of a notice of disapproval or a request for a modification, Respondent shall, within twenty-one (21) days or such longer time as specified by EPA in its notice of disapproval or request for modification, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding the notice of disapproval, or approval with modifications, Respondent shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission.

60. If any submission is not approved by EPA, Respondent shall be deemed to be in violation of this Order.

#### XV. PROGRESS REPORTS

61. In addition to the other deliverables set forth in this Order and the SOW, Respondent shall provide monthly progress reports to EPA with respect to actions and activities undertaken pursuant to

this Order. The progress reports shall be submitted on or before the 15th day of each month following the effective date of this Order. At a minimum these progress reports shall: (1) describe the actions which have been taken to comply with this Order during the prior month; (2) include all results of sampling and tests and all other data received by Respondent and not previously submitted to EPA; (3) describe all work planned for the next forty-five (45) days with schedules relating such work to the overall project schedule for RA completion; and (4) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

#### XVI. QUALITY ASSURANCE, SAMPLING AND DATA ANALYSIS

62. Respondent shall use the quality assurance, quality control, and chain of custody procedures described in the "EPA NEIC Policies and Procedures Manual," May 1978, revised August 1991, EPA-330/9-78-001-R; EPA's "EPA Requirements for Quality Management Plans," EPA QA/R-2, Interim Final, August 1994; EPA's "Data Quality Objectives Process for Superfund," (EPA-540-R-93-071), September 1993; "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," QA/R-5, Draft Interim Final, August 1994; and any amendments or revisions to these documents, while conducting all sample collection and analysis activities required herein by any plan. To provide quality assurance and maintain quality control, Respondent shall:

- a. Use only laboratories which have a documented Quality Assurance Program that complies with EPA QA/R-5.
- b. Ensure that the laboratory used by the Respondent for analyses, performs according to a method or methods deemed satisfactory to EPA and submits all protocols to be used for analyses to EPA at least 30 days before beginning analysis.

- c. Ensure that EPA personnel and EPA's authorized representatives are allowed access to the laboratory and personnel utilized by the Respondent for analyses.

63. Respondent shall notify EPA not less than twenty-one (21) days in advance of any sample collection activity. At the request of EPA, Respondent shall allow split or duplicate samples to be taken by EPA or its authorized representatives, of any samples collected by Respondent with regard to the Site or pursuant to the implementation of this Order. In addition, EPA shall have the right to take any additional samples that EPA deems necessary.

#### XVIII. COMPLIANCE WITH APPLICABLE LAWS

64. All activities by Respondent pursuant to this Order shall be performed in accordance with the requirements of all Federal and state laws and regulations. EPA has determined that the activities contemplated by this Order are consistent with the National Contingency Plan (NCP).

65. Except as provided in section 121(e) of CERCLA and the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site. Where any portion of the Work requires a Federal or state permit or approval, Respondent shall submit timely applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

66. This Order is not, and shall not be construed to be, a permit issued pursuant to any Federal or state statute or regulation.

67. All materials removed from the Site shall be disposed of or treated at a facility approved by EPA's RPM and in accordance with section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3); with the U.S. EPA "Revised Off-Site policy," 40 CFR section 300.440; and with all other applicable Federal, state, and local requirements.

XVIII. REMEDIAL PROJECT MANAGER

68. All communications, whether written or oral, from Respondent to EPA shall be directed to EPA's Remedial Project Manager or Alternate Remedial Project Manager. Respondent shall submit to EPA three copies of all documents, including plans, reports, and other correspondence, which are developed pursuant to this Order, and shall send these documents by certified mail or overnight mail, as requested by the RPM.

EPA's Remedial Project Manager is:

Nadia Hollan  
U.S. Environmental Protection Agency  
75 Hawthorne Street (SFD-7-1)  
San Francisco, CA 94105  
(415) 744-2363

EPA's Alternate Remedial Project Manager is:

Michael Montgomery  
U.S. Environmental Protection Agency  
75 Hawthorne Street (SFD-7-1)  
San Francisco, CA 94105  
(415) 744-2362

69. EPA has the unreviewable right to change its Remedial Project Manager or Alternate Remedial Project Manager. If EPA changes its Remedial Project Manager or Alternate Remedial Project Manager, EPA will inform Respondent in writing of the name, address, and telephone number of the new Remedial Project Manager or Alternate Remedial Project Manager.

70. EPA's RPM and Alternate RPM shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. EPA's RPM or Alternate RPM shall have authority, consistent with the National Contingency Plan, to halt any work required by this Order, and to take any necessary response action.

71. Within five (5) days after the effective date of this Order, Respondent shall designate a Project Coordinator and shall submit the name, address, and telephone number of the Project Coordinator to EPA for review and approval. Respondent's Project Coordinator shall be responsible for overseeing Respondent's implementation of this Order. If Respondent wishes to change his/her Project Coordinator, Respondent shall provide written notice to EPA, five (5) days prior to changing the Project Coordinator, of the name and qualifications of the new Project Coordinator. Respondent's selection of a Project Coordinator shall be subject to EPA approval.

#### XIX. ACCESS TO SITE NOT OWNED BY RESPONDENT

72. If the Site, the off-Site area that is to be used for access, property where documents required to be prepared or maintained by this Order are located, or other property subject to or affected by the clean up, is owned in whole or in part by parties other than those bound by this Order, Respondent will obtain, or use its best efforts to obtain, site access agreements from the present owner(s) within thirty (30) days of the effective date of this Order. Such agreements shall provide access for EPA, its contractors and oversight officials, the state and its contractors, and Respondent or Respondent's authorized representatives and contractors, and such agreements shall specify that Respondent is not EPA's representative with respect to

liability associated with Operable Unit Two activities. Respondent shall save and hold harmless the United States and its officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action or other costs incurred by the United States including but not limited to attorneys fees and other expenses of litigation and settlement arising from or on account of acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Order, including any claims arising from any designation of Respondent as EPA's authorized representative(s) under section 104(e) of CERCLA. Copies of such agreements shall be provided to EPA prior to Respondent's initiation of field activities. Respondent's best efforts shall include providing reasonable compensation to any off-Site property owner. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA of its failure to obtain access. Subject to the United States' non-reviewable discretion, EPA may use its legal authorities to obtain access for the Respondent, may perform those response actions with EPA contractors at the property in question, or may terminate the Order if Respondent cannot obtain access agreements. If EPA performs those tasks or activities with contractors and does not terminate the Order, Respondent shall perform all other activities not requiring access to that property, and shall reimburse EPA, pursuant to Section XXIV of this Order, for all costs incurred in performing such activities. Respondent shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Respondent shall reimburse EPA, pursuant to Section XXIV of this Order, for all response costs (including attorney fees) incurred by the United States to obtain access for Respondent.

## XX. SITE ACCESS AND DATA/DOCUMENT AVAILABILITY

73. Respondent shall allow EPA and its authorized representatives and contractors to enter and freely move about all property at the Site and off-Site areas subject to or affected by the work under this Order or where documents required to be prepared or maintained by this Order are located, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondent and its representatives or contractors pursuant to this Order; reviewing the progress of the Respondent in carrying out the terms of this Order; conducting tests as EPA or its authorized representatives or contractors deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondent. Respondent shall allow EPA and its authorized representatives to enter the Site, to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under Federal law.

74. Respondent may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is not inconsistent with section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7) or other provisions of law. This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated by Respondent at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or the state without further notice to the Respondent. Respondent shall not assert

confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

75. Respondent shall maintain for the period during which this Order is in effect, an index of documents that Respondent claims contain confidential business information. The index shall contain, for each document, the date, author, addressee, and subject of the document. Upon written request from EPA, Respondent shall submit a copy of the index to EPA.

#### XXI. RECORD PRESERVATION

76. Respondent shall provide to EPA upon request, copies of all documents and information within their possession and/or control or that of their contractors or agents relating to Operable Unit Two activities at the Site or to the implementation of this Order, including but not limited to sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to EPA for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

77. Until ten (10) years after Work is completed pursuant to this Order, each Respondent shall preserve and retain all records and documents in its possession or control, including the documents in the possession or control of their contractors and agents on and after the effective date of this Order that relate in any manner to Operable Unit Two. At the conclusion of this document retention period, Respondent shall notify the United States at least ninety (90) calendar days prior to the destruction of any such records or documents, and upon request by the United States, Respondent shall deliver any such records or documents to EPA.



78. Until ten (10) years after Work is completed pursuant to this Order, Respondent shall preserve, and shall instruct their contractors and agents to preserve, all documents, records, and information of whatever kind, nature or description relating to the performance of the Work. Upon the conclusion of this document retention period, Respondent shall notify the United States at least ninety (90) days prior to the destruction of any such records, documents or information, and, upon request of the United States, Respondent shall deliver all such documents, records and information to EPA.

79. Within five (5) days after the effective date of this Order, Respondent shall submit a written certification to EPA's RPM that they have not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to their potential liability with regard to the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding Operable Unit Two. Respondent shall not dispose of any such documents without prior approval by EPA. Respondent shall, upon EPA's request and at no cost to EPA, deliver the documents or copies of the documents to EPA.

#### XXII. DELAY IN PERFORMANCE

80. Any delay in performance of this Order that, in EPA's judgment, is not properly justified by Respondent under the terms of this paragraph shall be considered a violation of this Order. Any delay in performance of this Order shall not affect Respondent obligations to fully perform all obligations under the terms and conditions of this Order.

81. Respondent shall notify EPA of any delay or anticipated delay in performing any requirement of this Order. Such notification

shall be made by telephone to EPA's RPM or Alternate RPM within forty eight (48) hours after Respondent first knew or should have known that a delay might occur. Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Within five (5) business days after notifying EPA by telephone, Respondent shall provide written notification fully describing the nature of the delay, any justification for delay, any reason why Respondent should not be held strictly accountable for failing to comply with any relevant requirements of this Order, the measures planned and taken to minimize the delay, and a schedule for implementing the measures that will be taken to mitigate the effect of the delay. Increased costs or expenses associated with implementation of the activities called for in this Order is not a justification for any delay in performance.

#### XXIII. ASSURANCE OF ABILITY TO COMPLETE WORK

82. Respondent shall demonstrate its ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA within thirty (30) days after the effective date of this Order, one of the following: (1) a performance bond; (2) a letter of credit; (3) a guarantee by a third party; or (4) internal financial information to allow EPA to determine that Respondent has sufficient assets available to perform the Work. Respondent shall demonstrate financial assurance in an amount no less than the estimate of cost for the remedial action contained in the Record of Decision for Operable Unit Two. If Respondent seeks to demonstrate ability to complete the remedial action by means of internal financial information, or by guarantee of a third party, they shall re-submit such information annually, on the anniversary of the effective date of this Order. If EPA determines that such financial information is inadequate, Respondent shall, within thirty (30) days after receipt of EPA's notice of determination, obtain and present to EPA

for approval one of the other three forms of financial assurance listed above.

83. At least seven (7) days prior to commencing any work at Operable Unit Two pursuant to this Order, Respondent shall submit to EPA a certification that Respondent or its contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be conducted by or on behalf of Respondent pursuant to this Order. Respondent shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order.

#### XXIV. REIMBURSEMENT OF RESPONSE COSTS

84. Respondent shall reimburse EPA, upon written demand, for all response costs incurred by the United States in overseeing Respondent's implementation of the requirements of this Order or in performing any response action which Respondent fails to perform in compliance with this Order. EPA may submit to Respondent on a periodic basis an accounting of all response costs incurred by the United States with respect to this Order. EPA's certified Agency Financial Management System summary data (SPUR Reports), or such other summary as certified by EPA, shall serve as basis for payment demands.

85. Respondent shall, within thirty (30) days of receipt of each EPA accounting, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from the later of the date that payment of a specified amount is demanded in writing or the date of the expenditure. The interest rate is the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13.

86. Checks shall be made payable to the Hazardous Substances Superfund and shall include the name of the Site, the Site identification number (SSID # 09BE), the account number and the title of this Order. Checks shall be forwarded to:

U.S. Environmental Protection Agency  
Region IX  
ATTN: Superfund Accounting  
P.O. Box 360863M  
Pittsburgh, PA 15251

87. Respondent shall send copies of each transmittal letter and check to the EPA's RPM.

#### XXV. UNITED STATES NOT LIABLE

88. The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondent, or its directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

#### XXVI. ENFORCEMENT AND RESERVATIONS

89. EPA reserves the right to bring an action against Respondent under section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States related to this Order and not reimbursed by Respondent. This reservation shall include but not be limited to past costs, direct costs, indirect costs, the costs of oversight, the costs of compiling the cost documentation to support oversight cost demand, as well as accrued interest as provided in section 107(a) of CERCLA.

90. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, complete the response action (or any portion of the response action) as provided in CERCLA and the NCP, and seek reimbursement from Respondent for its costs, or seek any other appropriate relief.

91. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional Orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA, 42 U.S.C. § 9606(a), et seq., or any other applicable law. Respondent shall be liable under CERCLA section 107(a), 42 U.S.C. § 9607(a), for the costs of any such additional actions.

92. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA and any other applicable statutes or regulations.

93. Respondent shall be subject to civil penalties under section 106(b) of CERCLA, 42 U.S.C. § 9606(b), of not more than \$25,000 for each day in which Respondent willfully violates, or fails or refuses to comply with this Order without sufficient cause. In addition, failure to properly provide response action under this Order, or any portion hereof, without sufficient cause, may result in liability under section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount at least equal to, and not more than three times the amount of any costs incurred by the Fund as a result of such failure to take proper action.

94. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person for any liability it may have arising out of or relating in any way to the Site.

95. If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

#### XXVII. ADMINISTRATIVE RECORD

96. Upon request by EPA, Respondent must submit to EPA all documents related to the selection of the response action for possible inclusion in the administrative record file.

#### XXVIII. EFFECTIVE DATE AND COMPUTATION OF TIME

97. This Order shall be effective on December 1, 1998. All times for performance of ordered activities shall be calculated from this effective date, unless otherwise required by the SOW.

#### XXIX. OPPORTUNITY TO CONFER

98. Respondent may, within fourteen (14) days prior to the effective date of this Order, request a conference with EPA's Assistant Regional Counsel and Remedial Project Manager to discuss this Order. If requested, the conference shall occur at U.S. EPA Region IX, 75 Hawthorne Street, San Francisco, CA 94105.

99. The purpose and scope of the conference shall be limited to issues involving the implementation of the response actions required by this Order and the extent to which Respondent intends to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this

any conference held pursuant to Respondent's request, Respondent may appear in person or by an attorney or other representative.

100. Requests for a conference must be by telephone followed by written confirmation mailed that day to the Remedial Project Manager.

So Ordered, this 11 day of September 1998.

BY: Keith Takata  
Keith Takata  
Director, Superfund Division  
U.S. Environmental Protection Agency  
Region 9

## ATTACHMENT B

**STATEMENT OF WORK FOR REMEDIAL ACTION****MOTOROLA 52ND STREET SUPERFUND SITE, OPERABLE UNIT 2  
PHOENIX, ARIZONA****ATTACHMENTS**

Attachment 1. Summary of Major Submittals for the Remedial Action at Motorola 52nd Street .....	12
Attachment 2. Regulation and Guidance Documents .....	14

**1.0 Introduction****1.1 Site Description**

The Motorola 52nd Street Superfund Site is located in Phoenix, Arizona. Activities at this site began in 1982 with the investigation of releases of hazardous substances from the Motorola, Inc. Semiconductor Products Plant at 5005 East McDowell Road, in the eastern portion of Phoenix, Arizona, in Maricopa County. Motorola, Inc. is conducting on-site SVE and on and off-site groundwater treatment to approximately 40th Street. Releases of hazardous substances from the Allied-Signal facility at 111 South 34th Street have contributed to the groundwater contamination. The second interim remedy, operable unit two (OU2), addresses the contaminant plume from 40th Street to approximately 20th Street and is designed to prevent the further migration of the plume. The aquifer in the contaminated portion of the basin is located both in alluvium and bedrock in the upgradient portion of the site. At the easternmost (upgradient) point of OU2, the unconfined water table lies approximately 20 feet below land surface. At the western boundary of OU2 the alluvium thickness is greater than 200 feet, with depths to groundwater of approximately 80 feet. Fourth quarter 1997 groundwater samples within the OU2 portion of the plume show maximum contaminant concentrations above drinking water standards of many volatile organic compounds (VOCs) including trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethylene (DCE), 1,2-dichloroethylene (DCE), tetrachloroethylene (PCE) and vinyl chloride (VC).

**1.2 Purpose**

The purpose of this Statement of Work (SOW) is to set forth the framework and requirements for implementing the OU2 Remedial Action (RA) at Motorola 52nd Street in accordance with the OU2 Remedial Design (RD). The Record of Decision (ROD) for OU2 issued on July 21, 1994 defines the selected remedy. This SOW sets forth the requirements for the implementation phase of site remediation or construction of the RA. The RA is based on the RD to achieve the remediation standards specified in the ROD. Respondent shall complete construction (Construction Completion Notification) of this RA within 6 months after approval of the Final Work Plan.

**1.3 General Requirements**

- 1.3.1 The Respondent shall conduct the RA in accordance with the ROD for OU2, this SOW and the final plans and specifications developed during the RD. The RA shall also be consistent with the ROD issued on July 21, 1994 or any EPA approved changes to the ROD as documented in a ROD Amendment or Explanation of Significant Difference (ESD), the *Remedial Design/Remedial Action (RD/RA) Handbook* (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RA. The primary contact for this work is Nadia Hollan tel. (415) 744-2363; the secondary contact is Michael Montgomery, tel. (415) 744-2362.



- 1.3.2 A summary of the major deliverables and a schedule for submittals is attached. See Attachment 1. RA shall be completed in accordance with the schedule.
- 1.3.3 Specifically, the RA involves the construction, start-up, and first year operation & maintenance of a 5,300 gallon per minute (gpm) groundwater extraction and treatment system.
- 1.3.4 The Respondent shall furnish all necessary and appropriate personnel, including contractors and subcontractors, materials, and services needed for, or incidental to, performing and completing the RA.
- 1.3.5 A list of primary guidance and reference material is attached. See Attachment 2. In all cases, The Respondent shall use the most recently issued guidance.
- 1.3.6 The Respondent shall designate a representative who will communicate at least weekly with the Remedial Project Manager, either in face-to-face meetings or through conference calls.
- 1.3.7 The Respondent shall document all decisions that are made in meetings and conversations with EPA. The Respondent shall forward this documentation to the RPM within two (2) working days of the meeting or conversation.

## **2.0 Project Planning and Support**

### **2.1 Project Planning**

The purpose of this activity is to plan for the execution and overall management of the RA. The technical and managerial activities required to implement the RA and the associated costs are developed during the planning phase and are detailed in the RA Work Plan. Activities required for general project management that will occur throughout the duration of the project are included in this section. This activity may begin before or after the approval of the final design package and will continue throughout the RA. The following activities shall be performed as part of project planning and support:

- 2.1.1 Select Supervising Contractor. Within thirty (30) days of the Effective Date of this Unilateral Administrative Order, Respondent shall notify the EPA in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor for the implementation of the RA. EPA shall issue either a written notice of disapproval or a written authorization to proceed.
  - 2.1.1.1 Disapproval of Supervising Contractor. If EPA issues a notice of disapproval, The Respondent shall, within fifteen (15) Days after receipt of such disapproval, submit to EPA a list of alternate contractors that would be acceptable to the Respondent, including the qualifications of each contractor. EPA shall provide written notice to The Respondent of the name(s) of any contractor(s) that it disapproves and a written authorization to proceed with respect to any of the other contractors on the alternate contractor list. The Respondent may select any contractor from the alternate contractor list that is not disapproved by EPA and shall notify EPA in writing of the name of the selected contractor within thirty (30) Days after receipt of the EPA's approval of the alternate contractor list. The Respondent must obtain an authorization to proceed from EPA, and shall give such notice to EPA pursuant to this subparagraph, before the new Supervising Contractor performs, directs, or supervises any Work.
- 2.1.2 Attend Coordination Meeting. Before or concurrent with developing the RA Work Plan, The Respondent shall attend a coordination meeting to be held at the EPA Regional Office.
- 2.1.3 Conduct Site Visit. The Respondent shall conduct a site visit with the EPA RPM and the Remedial Design representative(s) (designer) during the RA planning phase to assist in

developing an understanding of the site and any construction logistics. Information gathered during the visit shall be used to better scope the project and to implement the RA. A Health and Safety Plan (HASP) is required for the site visit. The Respondent shall prepare a report that documents the site visit and any required action items or decisions. This report shall be submitted to the EPA RPM within ten (10) calendar days of the site visit.

2.1.4 Evaluate Existing Information. The Respondent shall obtain, copy (if necessary), and evaluate existing data and documents, including the final Design Package, the RD Work Plan, the ROD, Remedial Investigation/Feasibility Study (RI/FS), and other data and documents as directed by the RPM. This information shall be used to determine if any additional data are needed prior to procuring the constructor.

2.1.5 Work Plan. The Respondent shall prepare and submit a RA Work Plan which includes a detailed description of construction activities, operations and maintenance, performance monitoring, and an overall management strategy for the RA. After the submission of the RA Work Plan, Respondent shall present the general approach that will be used for the RA at a Work Plan coordination meeting with the RPM. This meeting will be held at the Region 9 office.

2.1.5.1 Develop Draft Work Plan. The Respondent shall prepare and submit a Draft RA Work Plan within thirty (30) calendar days after EPA's written authorization to proceed. Submit the original and three copies to the RPM. The Work Plan shall include a detailed description of the technical approach for the remediation and construction activities in accordance with the final design and ROD. The necessary procedures, inspections, deliverables, and schedules shall be specified. A comprehensive construction management schedule for completion of each major activity and submittal shall also be included. Specifically, the Work Plan shall present the following:

- A brief site description and summary of site history.
- A statement of the problem(s) and potential problem(s) posed by the site and how the objectives of the completed RA will address the problem(s).
- The contractor's technical approach to each activity to be performed, including a detailed description of each activity; the assumptions used; the information needed for each activity; any information to be produced during and at the conclusion of each activity; and a description of the deliverables that will be submitted to EPA.
- A schedule for specific dates for completion of each required activity and submission of each deliverable required by this SOW. (See Attachment 1). This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.
- An organizational structure which outlines the responsibilities and authority of all organizations and key personnel involved in the RA. A description of key project personnel's qualifications (project manager, resident engineer, quality assurance official, etc.) shall be provided.
- A detailed schedule for each activity necessary for implementation of the RA including but not limited to: ordering and delivery of parts for all components of the construction; acquiring necessary titles, easements, agreements, options, or rights of way; and obtaining government permits, approvals, or requirements necessary for construction and operation of the treatment system and monitoring network.
- A project management plan addressing both project management and document control for all activities conducted during the work.
- Any necessary updates or revisions to plans discussed in Section 4.0 of this SOW.

2.1.5.2 Attend Coordination Meeting. The Respondent shall attend a Work Plan coordination meeting at the Region 9 office. Any technical issues and possible

solutions shall be discussed at this meeting. The Respondent shall confirm these discussions and suggested plan of action in a memorandum to the RPM within two (2) days of the meeting.

- 2.1.5.3 **Final Work Plan.** The Respondent shall make revisions to the Draft Work Plan as a result of EPA's comments and/or meeting agreements and submit the Final Work Plan within twenty-one (21) days after receipt of EPA's written comments on the draft Work Plan.

## **2.2 Project Management**

- 2.2.1 **Prepare Periodic Status Reports.** Following the Effective Date of this UAO, The Respondent shall prepare Monthly Progress Reports documenting the technical progress and status of each activity in the SOW. The Progress Reports shall be due on the fifteenth (15th) day of each month following the reporting period.
- 2.2.2 **Meeting Participation and Routine Communications.** The Respondent shall attend project meetings, provide documentation of meeting results, and shall contact the RPM by telephone on a weekly basis to report project status.
- 2.2.3 **Maintain Schedule Control System.** The Respondent shall develop and maintain a system to monitor and control the schedule of the RA. The Respondent shall specify the process to continuously update the information in the system as a result of engineering network analyses and changing field conditions. The system shall have the capability to compare technical progress and predict completion dates.
- 2.2.4 **Coordinate with Local Emergency Response Teams.** The Respondent shall coordinate with local emergency responders to ensure the proper implementation of the HASP and specifically the Emergency Response Plan. The Respondent shall, if necessary, conduct a kickoff meeting at the site with all local emergency responders, and notify the responders of any changes to the Emergency Response Plan throughout the RA.

## **3.0 Community Relations**

The Respondent shall provide community relations support to EPA throughout the RA. The Respondent shall provide community relations support in accordance with *Community Relations in Superfund: A Handbook*, June 1988. This activity begins with the submission of the Final RA Work Plan and continues throughout the duration of the work assignment. Community relations support shall include the following activities:

### **3.1 Public Meetings and Availability Support**

- 3.1.1 **Technical Support.** The Respondent shall assist the RPM in providing technical support for community meetings that may be held during the RA. This support may include preparing technical input to news releases, briefing materials, arranging other community relations vehicles (i.e., site tours), and helping the RPM to coordinate with local agencies.
- 3.1.2 **Logistical and Presentation Support.** The Respondent shall assist the RPM in preparing technical briefing materials and in arranging for the logistical details for the meeting(s).
- 3.1.3 **Public Notice Support.** The Respondent shall assist the RPM in drafting public notices, announcing the public meetings and placing the notice in a local paper of general circulation.

### **3.2 Special Community Relations Projects**

With approval of the RPM, The Respondent shall arrange for the construction of projects responsive to community needs which are not generally or specifically included in the construction tasks. This task may also

include but not be limited to landscaping agreed upon by the RPM to mitigate the project impact on the community, if such work is not included in other construction tasks.

#### **4.0 Site Specific Plans**

The Respondent shall review the existing site-specific plans that were prepared during RD and earlier phases of OU2, and update, as necessary, to implement the RA. All necessary updates shall be included in the appendices to the Final Work Plan, and submitted according to the attached schedule in this SOW (see Attachment 1). Typical plans include a health and safety plan, sampling and analysis plan, and construction quality assurance plan. The Respondent have the overall responsibility to prepare, update, and/or maintain the necessary site-specific plans for implementation of the RA. The Respondent will incorporate the plans and procedures received from the Supervising Contractor and any subcontractors into the overall site plans. Construction plans and procedures are living documents and The Respondent shall update the appropriate plans, as necessary, throughout the RA.

##### **4.1 Update Site Management Plan**

The Respondent shall update the Site Management Plan (SMP) that was prepared during RD. This plan provides EPA with a written understanding of how access, security, health and safety, contingency procedures, management responsibilities, and waste disposal are to be handled during construction. The Respondent shall update the plan, as necessary, to incorporate any contractors' and/or subcontractors' plans.

4.1.1 Update Health and Safety Plan. Prepare a site-specific HASP that addresses overall health and safety considerations for all personnel on-site. The Respondent shall incorporate the constructor's and any subcontractors' HASPs into the overall site plan. The Respondent shall provide the overall framework for site safety and ensure that adequate warning systems and notifications are understood by all parties. The HASP shall specify employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with [40 CFR 300.150 of the NCP and] 29 CFR 1910.120 1(1) and (1)(2). Whenever possible, refer to the HASP developed for the RI/FS or RD when preparing the HASP for the RA. For any site visits, a task-specific HASP must also be prepared to address health and safety requirements.

4.1.2 Update Sampling and Analysis Plan (Chemical Data Acquisition Plan). Prepare a sampling and analysis plan to reflect the specific objectives of any data acquisition conducted during construction. The SAP will outline the data collection and quality assurance requirements of any sampling and analysis conducted by The Respondent.

4.1.2.1 Quality Assurance Project Plan. The Respondent shall prepare a Quality Assurance Project Plan (QAPP) in accordance with EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5) latest draft or revision. The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired data quality objectives (DQOs). The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan. The QAPP developed for the RD and/or RI/FS should be referenced or adapted whenever possible when preparing the QAPP for the RA.

4.1.2.2 Field Sampling Plan. Prepare a Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the Contract Lab Program (CLP) and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar

with the site would be able to gather the samples and field information required. The FSP developed for the RD and/or RI/FS must be referenced or adapted whenever possible; The Respondent shall document any required changes to the FSP in a memorandum to the RPM.

4.1.2.3 Data Management Plan. Prepare a Data Management Plan that outlines the procedures for storing, handling, accessing, and securing data collected during the RA.

4.1.2.4 Develop Other Plan(s). As the RPM or The Respondent deem necessary, The Respondent shall develop any other plans appropriate for inclusion in the Work Plan.

#### 4.2 Update Pollution Control & Mitigation Plan

Prepare a Pollution Control & Mitigation Plan that outlines the process, procedures, and safeguards that will be used to ensure contaminants or pollutants are not released off-site during the implementation of the RA. Any plans and procedures prepared during the RD should be referenced or adapted whenever possible (i.e., sediment and erosion control plan and air monitoring plan).

4.2.1 Update Transportation & Disposal Plan (Waste Management Plan). Prepare a Transportation & Disposal Plan that outlines how wastes that are encountered during the RA will be managed and disposed of. The Respondent shall specify the procedures that will be followed when wastes will be transported off-site for storage, treatment, and/or disposal.

#### 4.3 Update Construction Quality Assurance (CQA) Plan.

The Respondent shall review and update the final Construction Quality Assurance (CQA) Plan as submitted as part of the final design documents. The CQA Plan shall outline the necessary steps to inspect and sample construction materials (i.e., membranes, concrete) and to ensure the overall quality of the constructed project. The CQA Plan shall include the following elements:

- Responsibility and authority of all organization and key personnel involved in the remediation action construction.
- CQA Personnel Qualifications. The Respondent shall establish the minimum qualifications of the CQA Officer and supporting inspection personnel.
- Inspection Activities. The Respondent shall establish the observations and tests that will be required to monitor the construction and/or installation of the components of the RA(s). The plan shall include the scope and frequency of each type of inspection to be conducted. Inspections shall be required to verify compliance with environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. Inspections shall also ensure compliance with all health and safety procedures.
- Sampling requirements. The Respondent shall establish the requirements for sampling activities, sample size, sample locations, frequency of testing, criteria for acceptance and rejection, and plans for correcting problems as addressed in the project specifications.
- Documentation. The Respondent shall describe the reporting requirements for CQA activities. This shall include such items as daily summary reports and inspection data sheets.

## 5.0 Construction Requirements

### 5.1 RA Construction

The Respondent shall construct the complete treatment system within one-hundred eighty (180) days after approval of the Final Work Plan and in accordance with the ROD, this SOW and the final plans and specifications developed during the RD. The RA shall comply with all ARAR's identified in the ROD and/or

by the EPA RPM. At a minimum, the constructed extraction system shall maintain a Zone of Capture that will prevent the entire north-south width and depth of groundwater in excess of MCLs from migrating further downgradient, and the constructed treatment system shall treat the extracted water so that the effluent water quality at the point of discharge meets the ARARs as specified in the OU2 ROD. Components of the constructed treatment system shall include:

- Wells for extracting groundwater from the OU2 Area to be located in the approximate vicinity of Interstate 10 and Van Buren Street.
- A treatment facility for treatment of extracted groundwater.
- Pipelines for conveying extracted groundwater to the treatment facility located near the extraction wells.
- Pipelines for conveying treated water from the treatment facility to the point(s) of discharge(s).
- Reinjection wells, and/or other necessary discharge equipment.
- Any monitoring network construction necessary to evaluate System performance and contaminant capture, consistent with the OU2 ROD.
- Any additional construction deemed necessary to complete the treatment system.

## **5.2 Design or Construction Modifications**

The Respondent may propose modifications to the work based on new data or other relevant information. The Respondent shall submit any requests for modifications in writing to the RPM in a Technical Memorandum. The Technical Memorandum must describe what changes need to be made, the basis for such changes, and the impact of changes on the construction schedule. The RPM must approve the Technical Memorandum in writing before implementing the changes. A Technical Memorandum must also be submitted at the request of the RPM if any design changes or modifications are deemed necessary by the RPM.

## **5.3 Construction Completion and Notification**

The Respondent shall complete construction and operational testing of the system within one-hundred eighty (180) days of approval of the Final Work Plan. The Respondent shall submit a written notification documenting completion of construction of the treatment system to EPA within fifteen (15) days after completion of construction and operational testing of the treatment system. The Respondent shall also schedule a pre-final inspection at this time as described in section 7.1.

# **6.0 Start-Up and Operation and Maintenance [O&M] Planning**

The purpose of this activity is to document the tasks necessary to operate and maintain the treatment system for protection of the integrity of the remedy and to evaluate system performance during start-up and over long-term operation. This activity begins during the later stages of construction with the preparation of the Draft O&M manual and continues after the submittal of the Final O&M Manual as occasional updates and revisions to the manual will be necessary.

## **6.1 Prepare Operation and Maintenance (O&M) Manual**

The Respondent shall prepare and submit an Draft O&M Manual within sixty (60) days from the approval of the Final Work Plan. The Draft O&M Manual should be revised within thirty (30) days after construction completion and operational testing of the constructed system. The Final version of the manual shall be submitted to the RPM within 30 days after receipt of EPA comments.

- 6.1.1 **Equipment Start-up and Operator Training:** initial and routine equipment start up and monitoring requirements; technical specifications governing treatment systems; requirements for providing appropriate service visits by experienced personnel to supervise the installation, adjustment, start-up and operation of the systems; schedule for training personnel regarding appropriate operational procedures once start up has been successfully completed.

- 6.1.1.1 The Start-up Monitoring Plan shall provide:

- monitoring schedules for chemical contaminants and/or hydrogeologic monitoring to be performed during the system calibration period.
  - specific objectives for sampling and analysis of groundwater from monitoring and extraction wells and sampling and analysis of treatment plant effluent using statistical process control methods and a description of calculations necessary to evaluate system performance with respect to surface and groundwater treatment objectives.
  - where applicable discharge standards are exceeded during start-up, a modified monitoring schedule to facilitate system compliance.
  - procedures to accurately document system compliance during start-up.
  - procedures to ensure that the system continues to operate according to specification, including, but not limited to, scheduled visual inspections, scheduled cleaning and/or backflushing, and the use of any chemical additives for corrosion or pH control.
  - procedures for shut-down of the system to be implemented in the event that problems are encountered.
- 6.1.2 Normal Operation and Maintenance (O&M): a description of tasks for system operation; description of tasks required for system maintenance; description of prescribed treatment or operating conditions; schedule showing the required frequency for each O&M task, including a periodic review of operational data to ensure system operation is within standard operating ranges.
- 6.1.3 Potential Operating Problems: a description and analysis of potential operating problems; sources of information regarding problems; common remedies or anticipated corrective actions.  
Specifically, The Respondent shall identify any potential system failures and develop corrective action plans, if necessary.
- 6.1.4 Routine Monitoring, Sampling and Laboratory Testing: a description of monitoring and sampling tasks (including monitoring of UV oxidation and liquid GAC systems); description of required laboratory tests and their interpretation; required QAPP; schedule of monitoring and sampling frequency and date, if appropriate, when monitoring may cease; description of statistical process control plan with suggested variables and sampling plan with proposed control charts and control limits.
- 6.1.5 Performance Evaluation Calculations: for each contaminant of concern and each treatment process (as relevant), influent loading rates, mass of contaminants removed to date, estimated carbon usage and remaining carbon capacity, total water treated based on hour meter readings, conclusions on the performance of the system, compliance with VOC discharge limits, and recommendations for the frequency of carbon change-outs and other relevant tasks for optimal system performance, as necessary.
- 6.1.6 Contingency Plan: notification of EPA in the event that operational data is not within standard operating ranges, or one or more of the contaminants of concern in the treated water exceeds one-half its applicable discharge standard, or if it is anticipated that operational data will not remain within standard operating ranges, or if operation, monitoring and maintenance activities are not performed according to the O&M Manual; and description of measures to be taken to bring the system back into compliance or ensure that the system remains in compliance.  
Alternative procedures to prevent undue hazard in the event of equipment failure such as a release or threatened releases of hazardous substances, pollutants or contaminants which may endanger public health or welfare or the environment or exceed cleanup standards; analysis of vulnerability and additional resource requirements should an equipment failure occur; mechanisms which will permit O&M to be modified in response to changing conditions.

- 6.1.7 **Safety Plan:** a description of precautions to be taken and required health and safety equipment for site personnel protection; safety tasks required in the event of equipment failure.
- 6.1.8 **Equipment:** equipment identification; installation of monitoring components; maintenance of site equipment; replacement schedule for equipment and installation components.
- 6.1.9 **Records and Reporting:** operation log sheets, including routine maintenance and service, orders placed with vendors, field activities, system performance anomalies, system shut-downs, component failures, summaries of meetings or discussions with subcontractors, engineers or operators, laboratory records; mechanism for reporting emergencies; and maintenance records. Copies of all operational monitoring and sampling documents, including the O&M Manual, laboratory results, logbook, forms, charts, and chain of custody sheets, shall be maintained in a central file location within the treatment facility.

## **7.0 System Start-Up**

The purpose of the system start-up activities is for The Respondent to conduct the necessary inspections, evaluations, and monitoring to verify completed work and achievement of construction and operational performance standards.

### **7.1 Pre-final/Final Activities**

- 7.1.1 **Make pre-final/final construction inspection.** Within fifteen (15) days of completion of construction and operational testing of the treatment system, The Respondent shall schedule and conduct a pre-final inspection with the constructor and develop a punch list of deficiencies. The Project Managers, Supervising Contractor, and a representative of the Construction Contractor will participate in the pre-final inspection. The Construction Inspection shall consist of a walk-through inspection of the entire project site and shall include an operational test of the treatment equipment. The Respondent shall prepare and submit a Pre-final Inspection Report within thirty (30) days after the inspection which includes the list of deficiencies, completion dates for outstanding items, and the date for a final inspection. This report shall include the following:
  - A synopsis of the work completed as defined in this SOW;
  - A certification that the construction has been completed and meets the construction specifications, including specific performance standards;
  - As-built drawings signed and stamped by a professional engineer to certify that the drawings present a record of the completed construction; and
  - An explanation of how construction items which required corrective action were or will be resolved.
- 7.1.2 **Final Inspection Report.** The Respondent shall update the Pre-final Inspection Report and submit it as a Final Inspection Report within fifteen (15) days of the Final Inspection.
- 7.1.3 **EPA may require The Respondent to schedule an additional inspection or inspections to verify that all construction items that required correction have been addressed, and that the construction is complete and consistent with the UAO.**

### **7.2 System Start-Up**

The Respondent shall start the system after submission of the Final Inspection Report. The Respondent shall implement the Start-up Monitoring Plan and other relevant procedures and monitoring included in the Final O&M Manual and Final Work Plan.

- 7.2.1 **Start-Up System and Evaluate Equipment.** Equipment shall be evaluated for operating parameters and performance. At a minimum, the performance data to be collected shall be as needed to satisfy the requirements for preparing the Start-Up report required under Section 7.3.



7.2.2 **Performance Tests Oversight.** The Respondent shall oversee any performance tests conducted by the constructor and document procedures and results.

7.2.3 **Gather and Test Samples.** Samples shall be gathered and tested according to all relevant guidelines and plans to determine if the operating and performance standards are being met by the system and to establish baseline criteria for the treatment system.

### 7.3 Report Project Start-Up Performance

7.3.1 The Respondent shall prepare a Start-Up Report summarizing the performance data collected during the start-up period and procedures taken to evaluate system performance. The Start-Up report shall document the sampling and testing done on the system to ensure the system meets construction performance standards. The Start-Up report shall be submitted within thirty (30) days of completion of Start-up activities.

## 8.0 RA Completion

### 8.1 Demobilization

8.1.1 **Removal of Temporary Facilities.** The Respondent shall dismantle, pack up, and move off-site any temporary facilities (i.e., trailers) or equipment used during the course of the RA.

8.1.2 **Site Restoration.** At the direction of the RPM, The Respondent shall conduct reasonable activities that restore the physical appearance of the site (i.e., road restoration, fence removal, limited landscaping).

### 8.2 Remedial Action Report

8.2.1 **Prepare draft Remedial Action Report.** The Respondent shall prepare and submit to the RPM, within 180 days of start-up of the system, the Remedial Action Report, in accordance with the fact sheet entitled, *Remedial Action Report, Documentation for Operable Unit Completion*, Publication 9355.0-39FS, June 1992. The report shall summarize RA events, performance standards and construction quality control, construction activities, final inspection, certification that the remedy is operational and functional, O&M expectations, and RA costs.

8.2.2 **Prepare/Issue Final Remedial Action Report.** Within thirty (30) days after receipt of EPA comments, The Respondent shall prepare and submit the final Remedial Action Report to the RPM.

### 8.3 Operation and Maintenance Training.

The Respondent must ensure adequate training for O&M staff and, if necessary, shall support all necessary training of the long-term O&M staff.

### 8.4 First-Year Operation and Maintenance (O&M)

After submission of the Start-Up Report, The Respondent shall operate and maintain the groundwater containment and treatment system for one year according to the approved procedures in the Final O&M Manual. If necessary, as described in Section 8.3, The Respondent shall also coordinate with EPA to ensure that all personnel responsible for long-term operation and maintenance after the one year period are properly trained on the procedures and requirements in the O&M Manual.

## 9.0 Periodic Review

### 9.1 Monthly Reports

After initiation of O&M activities, The Respondent shall prepare Monthly Progress Reports for submittal to EPA on the fifteenth (15th) day following the reporting period. The Monthly Report shall contain: a description of O&M activities; a summary of all analytical results; calculations of the projected life of the carbon units and projected dates of carbon unit changeouts; a summary of any operations problems encountered, corrective actions taken or planned and other related issues; results of performance calculations including example calculations; a summary of gallons of water treated and pounds of contaminants removed; copies of field monitoring forms, copies of laboratory analytical reports.

## 9.2 Effectiveness Report

The Respondent shall submit an Effectiveness Report within ninety (90) days after the first year of required O&M. The report will define the zone of capture for the treatment system, assess hydraulic effects of the system operation, evaluate effects of the system on concentrations of VOCs in groundwater, document all data collected and associated trends, document regular maintenance work and repair work, and document any problems encountered with the system. The report shall define the sampling and data collection methods which shall be used to determine that the contaminant mass is being fully captured along its entire width and depth. The report shall also offer recommendations to the adjustment of the treatment system to ensure optimum performance and remedy requirements.

**Attachment 1**  
**Summary of Minor Submittals and Major Deliverables for the Remedial Action at**  
**Motorola 52nd Street, Operable Unit Two**

<b>SECTION</b>	<b>SUBMITTALS AND DELIVERABLES</b>	<b>REF NO.</b>	<b>NO. OF COPIES</b>	<b>DUE DATE (calendar days)</b>	<b>ESTIMATED EPA REVIEW PERIOD (working days)</b>
1.3.8	Conversation/Meeting Notes		3	2 days after conversation/meeting	NA
2.1.1	Notification of Supervising Contractor (List of Alternate Contractors) (Second Notification of Supervising Contractor)		3 3 3	30 days after UAO Effective Date (15 days after EPA Disapproval) (30 days after EPA Authorization to Proceed)	15 days after receipt of notification 15 days after receipt of list NA
2.1.3	Site Visit Report		3	10 days after site visit	10 days after receipt of report
2.1.5.1	Draft RA Work Plan		3	30 days after EPA Authorization to Proceed	60 days after receipt of Draft Work Plan
2.1.5.3	Final RA Work Plan		3	21 days after receipt of EPA comments on Draft RA Work Plan	15 days after receipt of Final Work Plan
2.2.1	Status Reports		3	Monthly and as directed by RPM	NA
4.1	Draft Revised Site Management Plan (SMP)		3	45 days after EPA Authorization to Proceed	14 days after receipt of SMP
4.1	Final Revised SMP		3	10 days after receipt of EPA comments	NA
4.1.1	Draft Revised Health and Safety Plan (HASP)		3	45 days after EPA Authorization to Proceed	14 days after receipt of plan
4.1.1	Final Revised HASP		3	10 days after receipt of EPA comments	NA
4.1.2	Draft Revised Sampling and Analysis Plan (SAP)		3	45 days after EPA Authorization to Proceed	14 days after receipt of plan
4.1.2	Final Revised SAP		3	10 days after receipt of EPA comments	NA
4.2	Draft Revised Pollution Control & Mitigation Plan		3	45 days after EPA Authorization to Proceed	14 days after receipt of plan

SECTION	SUBMITTALS AND DELIVERABLES	REF NO.	NO. OF COPIES	DUE DATE (calendar days)	ESTIMATED EPA REVIEW PERIOD (working days)
4.2	Final Revised Pollution Control & Mitigation Plan		3	10 days after receipt of EPA comments	NA
4.3	Draft Revised Construction Quality Assurance (CQA) Plan		3	45 days after EPA Authorization to Proceed	14 days after receipt of plan
4.3	Final Revised CQA Plan		3	15 days after receipt of EPA comments	NA
5.3	Construction Completion Notification		3	15 days after construction completion & operational testing	NA
6.1	Draft Operations and Maintenance Manual (O&M)		3	60 days after approval of Final Work Plan	NA
6.1	Draft Revised O&M Manual		3	30 days after construction completion & operational testing	30 days after receipt of report
6.1	Final O&M Manual		3	30 days after receipt of EPA comments	NA
7.1.1	Pre-Final Inspection Report		3	30 days after Pre-Final Inspection	NA
7.1.2	Final Inspection Report		3	15 days after Final Inspection	
7.3	Start-Up Report		3	30 days after completion of Start-Up	NA
8.2.1	Draft Remedial Action Report		3	180 days after Final Inspection	21 days after receipt of report
8.2.3	Final Remedial Action Report		3	30 days after receipt of EPA comments	NA
9.1	Progress Reports		3	Monthly and as needed by RPM	NA
9.2	OU2 Effectiveness Report		3	90 days after first-year O&M	

## **Attachment 2**

### **Regulations and Guidance Documents**

The following website contains information regarding the quality assurance regulations and guidances that are available: [www.epa.gov/region09/qa/index.html](http://www.epa.gov/region09/qa/index.html). The following list, although not comprehensive, comprises many of the current regulations and guidance documents that apply to the RA process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. CERCLA Compliance with Other Laws Manual, U.S. EPA, Office of Emergency and Remedial Response, Vol. 1, August 1988, OSWER Directive No. 9234.1-01 (PB90-272535) and Vol. 2, August 1989, OSWER Directive No. 9234.1-02 (PB90-148461).
3. Close Out Procedures for National Priorities List Sites, U.S. EPA, 1995, OSWER Directive No. 9320.2-09 (PB95-963241).
4. Community Relations in Superfund — A Handbook, U.S. EPA, Office of Emergency and Remedial Response, 1992, OSWER Directive No. 9230.0-3C (PB92-963341).
5. A Compendium of Superfund Field Operations Methods, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001, August 1987, OSWER Directive No. 9355.0-14 (PB88-181557).
6. Data Quality Objectives Process for Superfund, U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-93/071, September 1993, OSWER Directive No. 9335.9-01A.
7. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
8. EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, U.S. EPA Quality Assurance Management Staff, Draft Interim Final, August 1994, EPA QA/R-5.
9. EPA Requirements for Quality Management Plans, U.S. EPA, Quality Assurance Management Staff, Interim Final, QA/R-2.
10. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
11. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01 (PB-89-184626).
12. Guidance for the Data Quality Objectives Process, U.S. EPA Quality Assurance Management Staff, EPA QA/G-4, September 1994.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990 (PB90-226069).
14. Guidance on Expediting Remedial Design and Remedial Action, EPA/540/G-90/006, August 1990 (PB90-273871).
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response, 1988, OSWER Directive No. 9283.1-2 (PB89-184618).
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, November 1992, OSWER Directive No. 9380.3-10 (PB93-126787).
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
19. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 230/02-89-042 (PB89-234959); vol. 2, Ground water, July 1992, EPA 230/R-92/014 (PB94-138815).
20. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
21. NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised August 1991.
22. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II. National Institute of Occupational Safety and Health.
23. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.

24. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
25. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.
26. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
27. Remedial Design/Remedial Action (RD/RA) Handbook, U.S. EPA, Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995 (PB95-963307).
28. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
29. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
30. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, 1992, OSWER Directive No. 9285.1-03 (PB92-963414).
31. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
32. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
33. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
34. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
35. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
36. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
37. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
38. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
39. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.